Event-04

R Programming Language Event

Date: 29-04-2023 and

25-05-2023

By

Data Science Club

Information and Communication Technology Engineering

Faculty of Technology
Marwadi University, Rajkot

Club Mentor:

Prof. Nishith Kotak

(Assistant Professor,

Event 04: R language Programming Event
Date: 29.04.2023

R language programming event which was conducted by the students of SEM 2 Aryan Langhanoja and Umang Hirani in which they discussed the question of the Shark Tank Dataset and the concept of R Language .

Photos:

Day-2:

"R PROGRAMMING TUTORIAL" is an event organized by the **Data Science Club** online on Google Meeting on 25/05/2023 at 7PM. It was hands-on training session which covered basic tutorial of **R programming**, Mastering Conditional Statements,Loops, and Functions.

The flow of the event is as follows:

Introduction:

This report provides a comprehensive overview of R programming, covering the basic tutorial of R, as well as advanced topics such as conditional statements, loops, and functions. R is a powerful and widely-used programming language for statistical computing and graphics. It provides a wide range of tools and libraries for data manipulation, analysis, and visualization. Understanding these fundamental concepts is crucial for effective data analysis and programming in R.

Basic Tutorial of R Programming:

The basic tutorial of R programming is aimed at introducing beginners to the language and its syntax. It covers essential concepts such as data types, variables, arithmetic operations, and basic data structures.

1. Data Types: R supports various data types, including numeric, character, logical, integer, and complex. These data types are used to represent different kinds of information in R.
2. Variables: In R, variables are used to store data values. They can be assigned using the assignment operator (<- or =). For example, x <- 10 assigns the value 10 to the variable x.
3. Arithmetic Operations: R allows performing arithmetic operations such as addition, subtraction, multiplication, division, and exponentiation. These operations can be performed on numeric variables and produce numeric results.
4. Basic Data Structures: R provides several data structures, including vectors, matrices, data frames, and lists. These structures are used to store and manipulate data in different formats.

Mastering Conditional Statements:

Conditional statements are an essential part of any programming language, including R. They allow the execution of different code blocks based on specified conditions. In R, conditional statements are implemented using the if, else if, and else constructs.

1. If Statement: The if statement evaluates a condition and executes a block of code if the condition is true. The basic syntax is as follows:

```
if (condition) {
  # Code block executed if the condition is true
}
```

2. Else If Statement: The else if statement allows checking additional conditions if the previous condition(s) evaluate to false. It can be used to test multiple conditions sequentially. The syntax is as follows:

```
if (condition1) {
  # Code block executed if condition1 is true
} else if (condition2) {
  # Code block executed if condition2 is true and condition1 is false
}
```

3. Else Statement: The else statement is used as a fallback option when all previous conditions evaluate to false. It allows executing a block of code when none of the preceding conditions are true. The syntax is as follows:

```
if (condition1) {
  # Code block executed if condition1 is true
} else {
  # Code block executed if condition1 is false
}
```

Loops in R Programming:

Loops are used to repeatedly execute a block of code until a certain condition is met. R provides different types of loops, including for loops, while loops, and repeat loops.

1. For Loop: The for loop is used to iterate over a sequence of values or elements. It allows executing a block of code a specific number of times. The syntax is as follows:

```
for (variable in sequence) {
  # Code block executed for each value in the sequence
}
```

2. While Loop: The while loop repeatedly executes a block of code as long as a specified condition remains true. It is useful when the number of iterations is not known in advance. The syntax is as follows:

```
while (condition) {
  # Code block executed as long as the condition is true
}
```

3. Repeat Loop: The repeat loop executes a block of code indefinitely until a break statement is encountered. It is useful when the termination condition is determined within the loop. The syntax is as follows:

```
repeat {
  # Code block executed indefinitely until a break statement
  if (condition) {
    break  # Terminate the loop when the condition is met
  }
}
```

Functions in R Programming:

Functions allow encapsulating reusable blocks of code in R. They enhance code modularity, reusability, and maintainability. In R, functions can be defined using the function keyword and can accept input arguments and return values.

1. Function Definition: The syntax for defining a function in R is as follows:

```
  function_name <- function(arg1, arg2, ...) {
  # Code block executed when the function is called
  # Optional: return statement to return a value
}
```

2. Function Call: Once a function is defined, it can be called by its name, passing the required arguments. The syntax for calling a function is as follows:

result <- function_name(arg1, arg2, ...)

3. Return Value: Functions can return values using the return statement. The returned value can be stored in a variable or used directly. The syntax for returning a value is as follows:

return(value)

https://docs.google.com/document/d/16HQUFHSHJP-75WhgenuHhowosw3ZhRDf/edit?usp=sharing&ouid=106774355897126575468&rtpof=true&sd=true

➢ **Committee member involved:**

- Introduction of the event: Kush Jadav , Dharmi Javiya
- Conditional Statements explanation: Khushi
- Loops explantation :Dhruvi Bhalodiya
- Functions explantation : Mansiba Gohil
- General Management and Assisting Participants: Shruti Nathavani, Binti Bhatt, Aniket Patel

Photos: